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## RESEARCH

### Perfil de doadores de órgãos de um hospital público do oeste de Santa Catarina

Profile of organ donors in a public hospital in western Santa Catarina

Perfil de donantes de órganos en un hospital público en el oeste de Santa Catarina

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### ABSTRACT

**Objective:** To learn the epidemiologic profile of human organ and tissue donors of a public hospital in western Santa Catarina. **Method:** Documentary retrospective descriptive analysis, being a sample of medical records of patients that donated organs in the period from 2005 to 2010, and who met the donation effectiveness criteria. A semi-structured instrument used for data collection. **Results:** The results showed a predominance of male donors with 68%; aged 20 to 30 years (54%), level of education 48% had incomplete primary education, religion, 73% were Catholic, 52% of the diagnosis head trauma; most donated organs were the liver and kidney, both with 52%, with 42% heart. **Conclusion:** The majority of donors were male, young adult, low education, TBI being the main cause of death. **Descriptors:** Health profile, Donor tissues, Public health.

### RESUMO

**Objetivo:** Conhecer o perfil epidemiológico dos doadores de órgãos e tecidos humanos de um hospital público do Oeste de Santa Catarina. **Método:** Análise documental descritiva, retrospectiva, sendo a amostra constituída por prontuários de pacientes que efetivaram doação de órgãos no período de 2005 a 2010, e que se encaixaram nos critérios de efetivação da doação. Utilizou-se um instrumento semi-estruturado para coletados dados. **Resultados:** Os resultados mostraram predominância de doadores do sexo masculino com 68%; na faixa etária de 20 à 30 anos (54%); grau de instrução 48% possuíam ensino fundamental incompleto; religião, 73% eram católicos; o diagnóstico 52% de trauma crânio encefálico; os órgãos mais doados foram fígado e rim, ambos com 52%; coração com 42%. **Conclusão:** A maioria dos doadores constitui-se do sexo masculino, adulto jovem, baixa escolaridade, sendo a causa a principal de morte o traumatismo crânio encefálico (TCE). **Descritores:** Perfil de saúde, Doadores de tecidos, Saúde pública.

### RESUMEN

**Objetivo:** Conocer el perfil epidemiológico de los donantes de órganos y tejidos humanos de un hospital público en el oeste de Santa Catarina. **Método:** El análisis de documentos descriptivo, retrospectivo, y una muestra de historias clínicas de pacientes que hemos logrado la donación de órganos en el período de 2005 a 2010, y que cumplían con los criterios de eficacia de la donación. Se utilizó un instrumento semi-estructurado para recoger datos. **Resultados:** Los resultados mostraron un predominio de los donantes masculinos con 68% de entre 20 a 30 años (54%), el nivel de educación 48% tenían educación primaria incompleta, la religión, el 73% son católicos, el 52% de los diagnósticos trauma en la cabeza, la mayoría de los órganos donados fueron el hígado y el riñón, ambos con un 52%, con un 42% corazón. **Conclusión:** La mayoría de los donantes constituye un adulto macho, joven, bajo nivel de educación, siendo la principal causa de muerte TBI. **Descriptores:** Perfil de salud, Tejidos de donantes, Salud pública.

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## INTRODUCTION

**T**he number of transplants performed in Brazil has been growing significantly in recent years, highlighting treatment of terminal diseases, which do not have the possibility to other types of treatment. These transplants have shown positive results in improving the quality of life of the individual.<sup>1</sup> However, the number of patients seeking this type of treatment is growing every day, which leads to a great shortage of donations, thus many patients end up dying in the queue while waiting for a transplant donation, which makes the subject interesting for public health policies.<sup>2</sup>

Donation of organs and tissues is an act of love and solidarity, by means of which the organs of a person are donated after the observation of brain death under authorization of the family; or donation in life, when the individual in perfect health agrees with the act to save the lives of others, without representing risk to the integrity, vital functions and mental health of the donor.<sup>3</sup>

The discovery of organ transplants and their use as a form of treatment for the many diseases that cause failure of vital organs is considered one of the greatest advances in medicine.<sup>4</sup>

Since the beginnings, therapeutic experiences with organs and tissues have been developed worldwide therefore despite recent advances remember that the history of transplants have come a long way. In Brazil, the transplants started in the years 1964 and 1965 with the first two kidney transplants, performed in the cities of Rio de Janeiro and Sao Paulo respectively. The first transplant with the greatest repercussion in the country happened in the year 1968 in São Paulo, being the first heart transplant in Latin America.<sup>5</sup> In the decades of 50 and 60 was discovered also the need for genetic similarity and cellular immunity between donor and receiver, and there was the discovery of immunosuppressive drugs, which contributed to the success of this intervention.<sup>6</sup>

Despite the progress that took place in biomedicine regarding transplants through innovation and technology that gave big hits in the interventions, the legal department has not followed this development. Therefore around the 60 came the first laws for the regulation of the organ donation process, but many had gaps, generated controversy, being replaced by new or improved ones. The National Policy of donation and transplantation of organs and tissues is regulated by the law of 9.434 1997, together with the law of 2001 10.211 and Law of 11.633 2007, and the resolution of the Federal Council of Medicine (CFM) 1.480 of 1997.<sup>7</sup>

In Brazil, it is possible to have higher rates of potential donors and actual donors in relation to high levels of external cause victims by developed countries due mainly traffic accidents and violence. External causes are the third leading cause of death in the population, occupying the first position when the analysis is restricted to the group of 1 to 39 years,<sup>8</sup> and generally relate to more serious accidents, many young people progress to

brain death, which is the complete and irreversible failure of all brain / encephalic functions, thus becoming, potential donors. Similar epidemiological Characteristics can be perceived in Santa Catarina State and the development of educational activities is justified by the fact that the State has one of the highest rates of donations and organ transplants in the country.<sup>9</sup>

However, according to data from the Brazilian Association of organ transplants, in the year of 2011, had notification of 7,238 potential donors in the country, which amounts to 37.9%, of these only 10.7 percent have become actual donors.<sup>10</sup>

Even so, in recent years, with a significant increase in the number of organ transplants in almost all States of the Federation, the Brazil is among the countries that perform transplants in the world, and in 2011, reached the mark of 10 transplants per million people, more than doubling the number of surgeries with respect to the year 2001.<sup>11</sup> Today the country has one of the largest programs of public donations and organ transplants in the world with a total of 548 health establishments and 1,376 medical teams that perform these transplants, being divided into 111 institutions for kidney transplants, 13 bone marrow, liver 6, heart 9 and 3 lung.<sup>12</sup>

However, no state reached the number proposed by the Ministry of health in relation to the execution that is 40%. However, that same year, the States of Ceará and Santa Catarina were close to this number, with 37.5% and 36.5% respectively.<sup>13</sup> In the year of 2011, while Brazil arrived around 11 donors per million inhabitants, the State of Santa Catarina has managed to achieve 25 effective donors per million inhabitants, which is the best result ever achieved by a Brazilian State.<sup>10</sup>

However, the demand of this therapy is still greater than the supply, and thus many patients end up dying on the waiting list while awaiting a donation for transplant. This is a reality that unfortunately still is due to the feeling of fear, guilt, lack of knowledge about the donation and transplantation process, the fear by the trade in organs, religious, socioeconomic and cultural aspects, and distrust about the diagnosis of brain death, which leads to conflicts in decision making leading many families to opt for not donating.<sup>1-2,14</sup>

Faced with this panorama, the aim in this study meet the epidemiological profile of donors of organs and tissue from a public health facility in the Western region of Santa Catarina.

## METHOD

It is a descriptive survey of documentary and retrospective analysis with quantitative approach used to identify the epidemiological profile of donors of organs and tissue from a public hospital in Western Santa Catarina.

The data were collected in the period from May to July 2011, through the records of patients who made their organ donation in the period of 2005 to 2010 including patients over 18 years age and of both genders. For such an instrument was used to obtain the



relevant data collection, in order to meet the proposed objectives. The instrument includes the following variables: age, gender, education, origin, cause of death, religion, profession, sector where they were donors, complications presented by potential donor during the donation process and donated organs.

The selection of medical records occurred in the Center for Funding and Organ Transplantation in a hospital in the western region of Santa Catarina, by raising the registration of medical records with opened protocol for brain death, i.e., effective donor corpses from which organs and tissues were removed, and subsequently embedded within the inclusion criteria. From this, 19 medical records for structuring the survey sample were used. After identification, these were located in the Archives Collection and transplantation Center for data collection through analysis of the medical records.

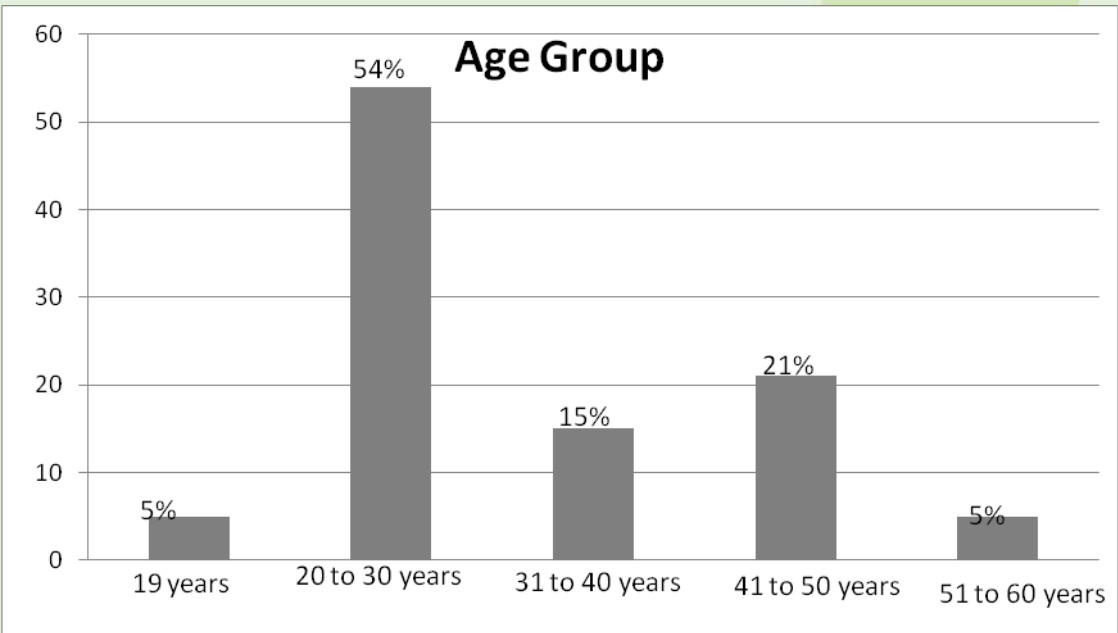
The survey was developed in accordance with the ethical aspects involving human subjects recommended by Resolution 196/96, and was submitted to the Committee of ethics in research with Human Beings from the University of the State of Santa Catarina (UDESC) opinion as consubstantiated CEP SH / UDESC No. 94/2011.

## RESULTS E DISCUSSION

Based on the collected data was performed statistical analysis to determine the socio-demographic and epidemiological profile of donor organs and tissues of a Public Hospital in Western Santa Catarina State.

In the period proposed for study 19 organ donors were obtained. Among these 32% were female and 68% male. The age ranged from 19 to 55 years, with an average of 37 years, being that there is a predominance (54%) of donors aged 20 to 30 years (Figure 1).

Figure 1: Age distribution of organ donors for the period 2005 to 2010



Source: The authors (2011).

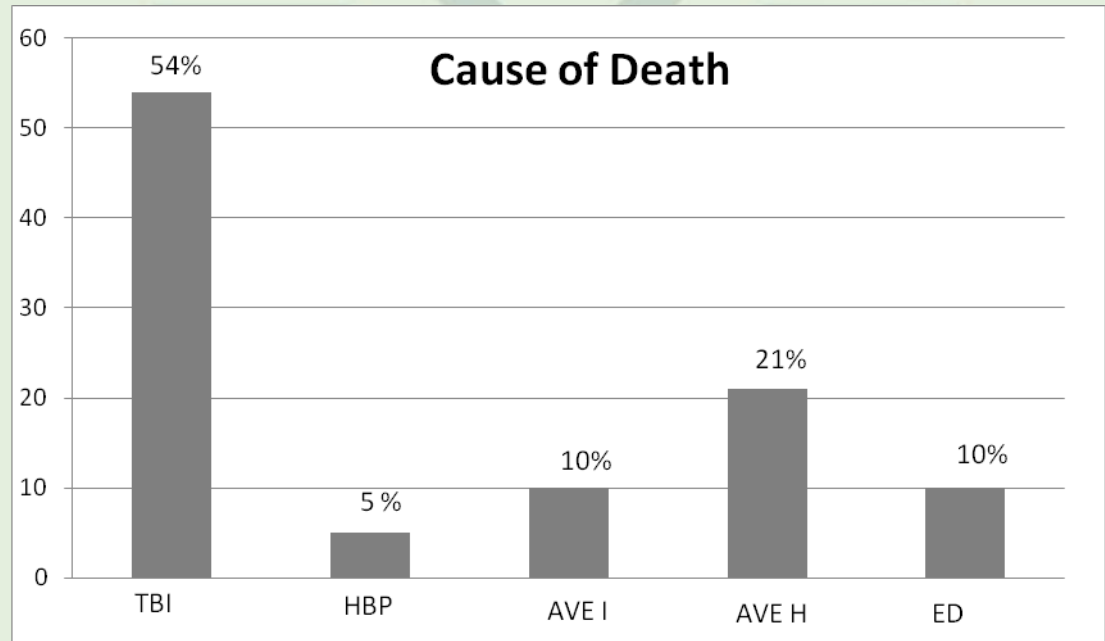
Regarding the schooling of donors, it was noted that 48% had incomplete elementary school; 5% had complete elementary school; 10% with incomplete high school; 27% with complete high school; 5% had incomplete higher education and 5% complete higher education.

As for religion, it was found that the majority were Catholics (73%); Then the Evangelical (5%) and ignored (22%).

Regarding the occupation of donor organs, this is presented in a diversified manner, with 23% self-employed; 11% drivers, and the rest remained in smaller proportions distributed between student, secretary, clerk, production assistant, kitchen assistant, salesperson, home, machine operator, responsible, retired farmer, painter, and general service worker.

Regarding the sector where they were potential donors at the time of diagnosis of brain death, all were in the Intensive Care Unit (ICU), where they are the majority of patients with severe acute neurological injuries, especially traumatic, they tend to move for brain death.<sup>15</sup>

Figure 2: Causes of death among organ donors for the period 2005 to 2010

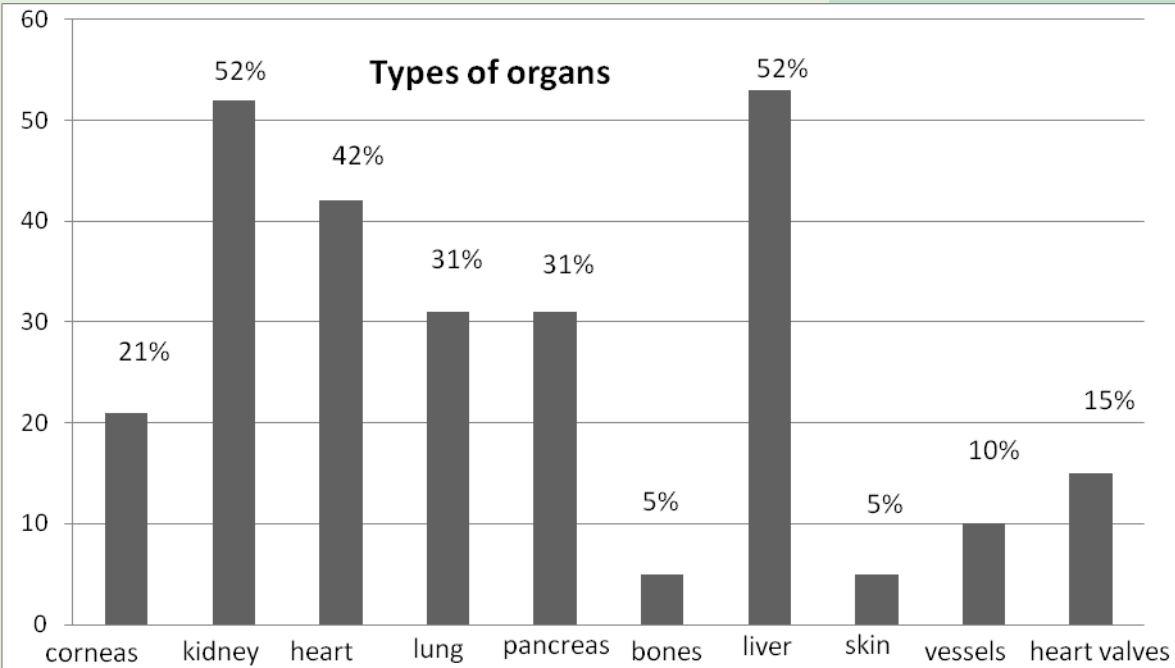


Source: The authors (2011).

Regarding the cause of death, the majority of deaths were diagnosed as traumatic brain injury with 54% of donors; followed by 21% with hemorrhagic stroke and 10% of records where there was a ME (Brain Death) as shown in figure 2, was not the determining factor described the same.

It was found that the majority of cases no major problems during the process of brain death protocol, only 32% had cardiac arrest donors; 21% had infection and 47% were ignored complications.

Figure 3: Percentage of the types of organs donated in the period of 2005 to 2010



Source: The authors (2011).

As shown in figure 3, in relation to the types of organs that were presented, as the most donated were liver and kidney with 52% of donations followed by heart with 42% and heart valves with 31%. The other organs such as intestines, muscle, cartilage and tendons are not organs that perform collection in the institution of study.

According to the research data, most donors (54%) were between the ages of 20 and 30 years, then donors with 41 to 50 years (21%), and 31 to 40 years (15%). The results are close to the national data published by the ABTO.<sup>10</sup>

In research conducted in Ceará with analysis of 368 medical records of organ donors, the results showed that the most prevalent age group of donors was between 18 and 40 years (50.5%), followed by age 41-60 years (32.3 %).<sup>16</sup> The survey conducted in Blumenau/SC, the age of the patients was between 06 and 77 years with a mean age of donors 46.8 years.<sup>17</sup> Another study conducted in the intensive care unit<sup>18</sup> of a reference hospital in the State of Santa Catarina in 2005, peaks were observed in the ages of 21 to 30 years and 41 to 50 years among the possible donors.

Often due to the fact that potential donors are young, the donation by the family can be influenced, since for family members is more difficult to accept young's death.<sup>19</sup> Some authors believe that in these circumstances people become stickier and harder to accept organ donation, even for being a subject recently discussed in society, and that until then, it was considered a taboo by many.

In the distribution of donors by gender, it was observed that 68% were male. The research covered 368 donors demonstrated very similar indexes, where most of the donors were men representing 66.3% (n = 244) and 32.3% (119) of the donors were female.<sup>16</sup>As the age profile of national donors in the year 2011, 60% were male and 40% female.<sup>10</sup>

The predominance of male donor is possibly due to the fact the male population die younger, they are more vulnerable to various risk factors, more prone to morbidity and mortality from external causes and cardiovascular diseases because male life style when compared women.<sup>20</sup>

According to surveys conducted by the Ministry of health, the male population has less longevity in relation to the female gender, since men live approximately 7.6 years less than women.<sup>21</sup>

In relation to the level of education, it can be observed in this study that most donors in question, have the elementary school, which contradicts the opinion of other authors when pointing out that, as the person has a greater degree of instruction, they have more knowledge, including the organ donation subject, the greater would be their ability to instruct their family on the importance of organ donation.<sup>22</sup> Other research suggests that much of the population understands the subject regarding organ donation because the information that link to the media.<sup>23</sup>

In the analyzed medical records, it was found that 73% were followers of the Catholic religion. Religiosity can stimulate the Act of donation, because it is related to the idea of helping others doing good, and also demonstrates a detachment to the area of each individual, which makes the passage of the patient in this life as a mission of helping another human being.<sup>19</sup> However, in some religions there are determinants opposed to organ donation, which would be philosophical factors and specific religious beliefs of these mystics.<sup>24</sup>

In research on the accepted, not accepted or indecision about being an organ donor, there was a predominance of Catholics.<sup>24</sup> However while investigating the degree of involvement with religion, it was identified that people with high levels of religious involvement, do not differ from people who consider themselves less as religious positioning when challenged about being a donor or not.<sup>24</sup> Another study about the knowledge and opinions of individuals about organ donation, also inferred that there is no significant differences between being in favor or not of organ donation with respect to religion.<sup>2</sup>

The 2000 Demographic Census, carried out by IBGE, while the present religion of the Brazilian citizens, showed that the predominant religion is Roman Catholic with 73.6%.<sup>25</sup>

According to studies,<sup>26</sup> Catholicism believes that with death, all decays and nothing else left, that way he would be in favor of organ donation, because it would be better to deliver part of the body to save other lives.

Understanding of health professionals with regard to these individual and religious beliefs of patients contributes to decision-making regarding the donation of organs and tissues, being professional must be able to serve you, respecting the beliefs and thoughts of the patients.<sup>26</sup>

As the profession of donors, this performed quite diversified, with only a small prevalence of 23% self-employed professionals and drivers with 11%. It is believed that the profession does not interfere in the donation of organs, because the important thing is the information about the subject that generates the discussion among family members. What influences for the non-organ donation is not the lack of information, so that people have access to means of information and have greater knowledge usually end up opting for the donation and influence in the family decision,<sup>27</sup> even though this study is contradictory in this respect.

While analyzing the sector where the potential donors at the time of the diagnosis of brain death, it was found that all were in the intensive care unit (ICU). According to a survey,<sup>16</sup> the sectors in which most frequently the organ donors were interned were the ICU



with 35.3% and 18.4% emergency. The ICU is where most patients with acute severe neurological injuries, especially the traumatic, which tend to evolve into the brain death.<sup>15</sup>

It is characterized as complex unit; ICU is with continuous monitoring system that receives potentially serious patients, where brain death rarely occurs, which is the appropriate place to give all the necessary support for the retention of organs for donation.<sup>16</sup>

The emergency sector already appears in the quote possibly for being the sector that receives the patient record for first aid, and in many cases, this ends up going to death even before she was admitted to the intensive care unit because of the severity of the patient's state of health.

When we evaluated the medical records regarding the identification of primary causes that led patients to develop into brain death, it was found that most of the diagnoses was of Traumatic Brain Injury (TBI) with 54%; followed by cerebrovascular accident (AVE) Hemorrhagic with 21%. Similar data were found in study in ICU of reference at a public hospital in the State of Santa Catarina in 2005, showing that one of the main causes of death associated with 45 possible donors, 23 were by TBI; 21 for cerebrovascular disease (CVD) and 01 for other causes.<sup>18</sup>

These results reinforce the data that indicates the occurrence of high rates of mortality from external causes, being the Brazil the fifth country with the highest number of deaths from traffic accidents, and thus, the trauma as main cause of brain death. According to data from DATASUL 2010, external causes are the third leading cause of death in the country and the state of Santa Catarina, behind only the circulatory diseases and neoplasms. The southern region of the country is the third with higher incidence of mortality from external causes.<sup>28</sup>

However regarding the national organ donation profile of 2011, we see just the opposite, being the first cause of death the AVE with 46% followed by TBI with 41%.<sup>10</sup>

When evaluated the question: complications during the Protocol process of brain death, 32% of donors had cardiopulmonary arrest (CPA); 21% presented infection and 47% were ignored the complications, which leads us to believe that there was no medical condition that would compromise the stability of the potential donor. In a study conducted in Ceará, the main complications presented by donors were the CPA in 9.5% of donors, and infection with 10.3% of donors.<sup>16</sup> It is believed that the low rate of complications due to the control of hemodynamic parameters, through the volume replacement, use of vasoactive drugs, water-electrolyte and metabolic control, temperature control and mechanical ventilation for the maintenance of potential donors.

However, the presence of infections is one of the factors that interfere in the process of donation of organs and tissues for transplantation, and in some cases the donor exclusion criteria. Positive serology and abnormal tests have also led to the disposal of various organs and tissues that comes to compromising the number of donations.<sup>16</sup>

The analysis on the types of organs that were presented as the most donated was the liver and kidney with 52% of the donations, followed by heart with 42%, heart valves with 31%, and cornea donation remains in 5th place. These results coincide with national data, where the largest amount of donation and transplants is kidney, followed by the liver. Now

in the State of Santa Catarina, the highest amount of transplants in the year 2011 was of corneas, followed by the kidney and liver transplant.<sup>10</sup>

In research conducted in the State of Piauí in the Northeast region, it was noted that most donated organs were of corneas, followed by kidney and heart, including cases of multiple donation. Therefore, it is evidenced that there is a uniformity in the type of donations across the country, but what if takes into consideration are the socio-demographic issues in each region, which influence the profile of the donor.<sup>29</sup>

## CONCLUSION

It was possible to conclude that the epidemiological profile of donors is composed mostly by male individuals, whichever is the young age being the majority between 20-30 years of age, predominant low education and the leading cause of TBI-related death.

In relation to the number of donations and transplants, despite being favorable in Santa Catarina State when compared to other States of the Brazilian Federation, the number of donors to meet the growing demand of patients on the waiting list and still insufficient. This requires permanent education policies regarding organ donation with the health professionals and lay population because the donation rely solely on family decision.

It is noteworthy that, in addressing brain death, it is important that health professionals pay attention to accommodating the familiar experienced stressors for dispelling these in the donation process, and the lack of knowledge prevails at the time of decision-making affecting organ donation. Because the family believes in the possibility of recovery of the patient, due to the presence of hemodynamic stability despite the brain death be present, this makes the family feel to be the cause of the patient's death.<sup>1,30</sup>

In this sense, it is possible to affirm that the information and awareness is still the best education practice, and encourages the increase of effective indexes and donors a new lifeline for thousands of people who are waiting in the queue. To which this practice is efficient, it is essential to the training of health professionals involved in this process, encouraging the donation and transplant of organs for later capture, considering it an effective method of saving lives when other forms of treatment are no longer possible.

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